



GEORGE ENGELMANN BOTANICAL NOTEBOOKS

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cataloging the materials.*

Pollen

			<u>Ap. & H. Edip.</u>
Abies	largest diam. of Pollen, 0.050-0.060 long !	0.11 - 0.14 mm.	0.06 - 0.07 long
Picea	0.045 - 0.060 !	0.09 - 0.13 "	0.045 - 0.065 long
Hesperopicea		0.07 - 0.08 "	
Redgum		0.09 "	
Pinus	0.025 - 0.045 ! mostly 0.03 - 0.04	0.04 - 0.06	0.02 - 0.03 long



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30-50 μ meas. 0.030, 0.050
lines

Size of Pollen ~ Abies

Larix 45-55

L. Lanzaea 56 50-55

American Shrub 45-47 Calcare

Tsuga Canadensis Calcare 36-40 Shrub 34-36 (Crest) 32-36

36

60

Douglasii (Colomb) 60-69 (Elev) 50-60

Williamsonii (Brown) 35-40

37

Con

Abies 50-62
pectinata 0.067-0.070

0.052-0.070 Balsamea Calcare 55-62 Shrub 50-54 Pennsylvania 51-59 Maine 53-55
subalpina
grandis (Colomb) 0.058-0.065

neglecta 0.060-0.062

canadensis 0.052-0.057

alpina 0.06-0.070

Cedrus 42
libani. 0.062

Picea 42-60
sitchensis (Concord) 42-46 (Shrub) 49 Pennsylvania 51 ("grisea" Gray) 46-50

Engelmannii (Colomb) 51-53

Mezgeri (Colomb) 60

alba (Gmel) 52-56 Marin 44-49 (Andrus) 51

exelsa (Gray) 55 Alpine 48-53

Hesperopeuce

Pettersonii 0.07-0.08 mm (Brown)



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Size of Pollen

Pseudostrobus

		Grms
<i>P. aristata</i> (Sarg 1864) 33-40 (Sarg 1861) 32-39	32-40	0.036
<i>P. Diffusa</i> (Brewer) 30-36	30-36	32
<i>P. leiophylla</i> (Gray) 30-36	30-36	34
<i>P. Montezumae</i> (Gray) 43-44	43-44	43

Sylvestris ternatae

<i>P. Cubensis</i> (Wright) 30-34	32
<i>P. "tuberulata"</i> (H.B. Moore) 36-41	39
<i>P. Designis</i> (Bolander) 39-41	40
<i>P. Chihuahuana</i> (Wright) 31-34	32
<i>P. ponderosa</i> (Tandl.) 37-44 (Wright) 37-39	39
" ? (Bolander) 39-42 (H. Engelm) 41-44	41
<i>P. Canariensis</i> (Napier) 35?	35
<i>P. australis</i> (Durand) 33-40 36-40	38
<i>P. Elliottii</i> 0.039-0.040	



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Size of Pollen

Taeda

<i>P. mitis</i> (Virginia District)	39-42	(Missouri)	34-35	
<i>P. Taeda</i> (Mobile)	39-40	(Delaware)	36-38	Texas 30-37
<i>P. nigra</i> (Chaddsford)	39-42	(Bacon)	36-43	
<i>P. sentinella</i> (KBM)	34-41			
<i>P. Banksiae</i> (Lapham)	26-30	(Oconto)	26-28	28
<i>P. inops</i> (Chaddsford)	31-35			33
<i>P. Greggii</i> (Sedillo)	32-40			35



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Size of Pinus

Sylvestris Giratae

<i>P. sylvestris</i> (H.B. Moq.)	32-36	(Detroit)	31-36	(Frankf.)	32-34	34
<i>P. pinaster</i> (Pari)	40-43					42
maritima (H.B. Moq. ¹⁸⁶⁴)	43-48	(H.B. Moq. 1863)	46-50			46
<i>P. resinosa</i> (H.B. Moq. 1863)	34-38	(Oconto)	30-33	(Maine)	31-35	33
<i>P. Brutia</i> (Naples)	36-40					38
<i>P. Halepensis</i> (Algiers)	37-40	(H.C. Beck)	34-36			35-38
<i>P. densiflora</i> (Lam.)	^{H.C. Beck} 20-26					22-24
<i>P. rotundata</i> H.C. Beck	29-36					32
<i>P. parviflora</i> H.B. Moq.	25- ²⁸ 31	(H.B. Camb.)	31-34	(Soleil)	32-39	30-34
	(H.B. Carlsbad.)	27-33	Chaddeport	31-36		
<i>P. contorta</i> (Pary 1864)	34-39	(Car. 1862)	32-34	(Lyall)	33-39	35
		(Brown 2092)	33-38	(Brown 2830)	33-36	
?	(Bolander 2)	39-44				41

P. Lancio

in Calabria (H.C. Beck) 33-36 35

P. austriaca (H.B. Moq.) 36-42 (H.B. Camb.) 35-41 (H.C. Beck) 35-39 38
(Naples) 31-33

P. murrayana (Pary Mortong) 35-39 37



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Pinus

Pinea

P. pinea (Burm) 43-44 (Reynaud) 38-40

40

P. Sabiniana (Bower) 40-46 (Bolander) 40-46

43

Cembroides

P. Parryana

P. edulis (Parry) 27-31 (Fendler) 27-30 (Wisliz) 27-29

29

P. monophylla (H. Engelm) 28-37

33

Cembra

P. flexilis (Parry) 39-45

42

P. Cembra (Koest Ceniz) 36-38

37

Strobilus

P. Strobilus (Frankl) 34-40 (Cambridge) 36-40 Chedworth 33-39 (New Hampshire) 33-39

38

P. excelsa (Benth) 37-40 Cambridge 37-43

40

P. Lambertiana (Parry & Gray) 39-43

41



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Pollen

0.04 006

0.020-0.044 - only maritima
0.050

longest diameter

<u>Pollen</u>	<u><i>Pinus</i> flexilis</u>	0.042	<u><i>P. densiflora</i></u> (182 Jp.) 0.020-0.026 (25)
<u>P. contorta</u> 0.027-31 (29)	<u><i>P. contorta</i></u> 0.039-0.045		<u><i>P. Banksiana</i></u> 0.023-0.030
<u>P. monophylla</u> 0.028-37 (33)	<u><i>P. monophylla</i></u> 0.035-0.037		<u><i>P. Taeda</i></u> (Del.) 0.036-0.038
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Taeda</i></u> (Del.) 0.034-0.037
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Tamias</i></u> (Del.) 0.032-0.036
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Tamias</i></u> (Del.) 0.027-0.030
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Taedophylla</i></u> 0.030-0.036 (=0.034)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Montezumae</i></u> 0.043-0.044
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Greggii</i></u> (402) 0.033-0.037 (0.035)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Chihuahuana</i></u> 1888. 0.031-34 (0.032)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Canariensis</i></u> (Neapl.) 0.033-0.035
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. mitchii</i></u> (mo) 0.036-0.035
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. mitchii</i></u> (virg.) 0.039-0.042
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. ponderosa</i></u> (Wright) 0.037-39
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. ponderosa</i></u> (Wright) 0.037-41
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. ponderosa</i></u> (Wright) 0.041-44
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. maritima</i></u> (Aef.) 0.035-0.039 (37)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. pinaster</i></u> (Panic.) 0.040-43 (42)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. contorta</i></u> Parry 0.029-34 (33)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. contorta</i></u> Gmel 0.033-39 (36)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Halepensis</i></u> (H.B. Shaw) 0.034-36
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. laricio</i></u> (Neapl.) 0.031-36 (35)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Obovata</i></u> (Neapl.) 0.033-37 (35)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. maritima</i></u> (Neapl) 29-33 (32)
	<u><i>P. monophylla</i></u> 0.035		<u><i>P. Sylvestris</i></u> Neapl 29-30
	<u><i>P. monophylla</i></u> 0.035		30-60
	<u><i>P. monophylla</i></u> 0.035		114 130
	<u><i>P. monophylla</i></u> 0.035		114

Pinus longiloba 0.053

Pinus menziesii 0.060

Pinus strobus 0.055

St. Louis 0.048-0.53

Pinus nigra (Cambridge) 0.042-46

42-60

Pinus nigra (H.B. Sh.) 0.049

90-126

alba (Gmel.) 0.051-0.56

0.044-0.49

0.046-0.50

Pinus Douglasii 0.060-69

36-60

Pinus contorta 0.036-40

Pinus strobus

0.07-0.08

Pinus contorta H.B. Sh. 0.045-47

45-50

Pinus strobus 0.050-55

Cedrus libani 0.042

42



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Polka of Pines

0.025-0.030 *Abies* *diabolis*, *Banksiana*

0.030-0.035 *Abies* *concolor*, *Albus*, *Alnobetula*
sybatica *montana* *rossacea*
pinops *contorta* *lanceolata*

0.035-0.040 3 *Pinus* *taeda*, *nigra*,

2 *Pinus*

1 *Strobilus* *excellens*

0.040-0.045 *Lambarckia* *flexilis*
ponderosa, *Montezum*
Picea *taeda* *Robusta*



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Friday 1/4 past 4,

Dear Doctor

Mrs Branch says her
emetic has operated but
is not better, worse



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Pollen

Incomplete Pollen see Pines Camb. Ann 1865

4-celled Pollen *P. coryphella*, *P. tuberosa*, *P. chilensis*
6-celled

6-celled - *P. tuberosa*, "P. Hughes"

Pollen tube *P. sylvestris* May 1862



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! magnuson 'magn. ff

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Über die Lufträume des Nadelholz Pollen
von Hartig, Bot. Zeitung 6 Dec 1867

cited by Delphin Drogman 1868-69 - p. 6

" Larix with male & female on same branch
has no need of such pollen" (Hartig)

"*L. Howardii*" ?
" *L. Canadensis* ?
" *L. borealis* ?



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regular meetings of the Academy
take place every first and third
of each month.

unusual attendance is requested at
s, and especially at the next one,
be held next Monday, at 8
the Polytechnic Hall.

C. V. RILEY,

Recording Secretary.

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